

State/Industry Ambient Monitoring Network

Air Quality Report

2nd Quarter 2003

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SECTION ONE

DISCUSSION OF MONITORING RESULTS

Sulfur Dioxide (SO₂)

There were no exceedances of the state or federal standards during the quarter. The maximum 1-hour concentration was 91 ppb on June 19 at Mandan NW - SPM; the maximum 3-hour concentration was 72 ppb on April 23 at Mandan NW - SPM; and, the maximum 24-hour concentration was 25 ppb on May 11 at Mandan - SPM. All sites achieved at least an 80% data recovery for the period except for TRNP - NU.

TRNP - NU failed to achieve 80% data recovery due to an equipment malfunction.

Sulfur Dioxide (SO₂) 5-Minute Average

The maximum 5-minute concentration was 406 ppb on June 19 at Mandan NW - SPM.

Ozone (O₃)

There was no exceedance of the ozone standard during the quarter. The maximum observed 1-hour concentration was 75 ppb on April 26 at Fargo NW. The highest 4th highest 8-hour concentration was 66 ppb on April 24 at Fargo NW.

Nitrogen Dioxide (NO₂)

The maximum 1-hour concentration observed was 45 ppb on May 12 at Fargo NW. All sites achieved at least an 80% data recovery for the period operated except Hannover.

Ammonia (NH₃)

The maximum 1-hour concentration was 97.0 ppb on January 9 at Beulah North . The site did not achieve at 80% data recovery for the period due to equipment malfunctions

The data is used as part of the ambient data input used by the newer dispersion models.

Inhalable Continuous PM_{2.5} Particulates

The maximum 1-hour concentration was 33.2 $\mu\text{g}/\text{m}^3$ on April 24 at Fargo NW. The maximum 24-hour concentration was 16.4 $\mu\text{g}/\text{m}^3$ on June 3 at Fargo NW. All sites achieved at least an 80% data recovery for the period operated..

The analyzer at TRNP - SU (Painted Canyon) began operation on April 23.

Inhalable FRM PM_{2.5} Particulates

The maximum 24-hour average concentration was 16.3 $\mu\text{g}/\text{m}^3$ on April 24 at Fargo NW. All sites achieved at least an 80% data recovery for the period.

Inhalable PM₁₀ Particulates

There was no exceedance of the 24-hour standard during the quarter. The maximum 24-hour average concentration was 60 $\mu\text{g}/\text{m}^3$ on June 20 at Bismarck Residential. All sites achieved at least an 80% data recovery for the period except Bismarck Residential.

SECTION TWO

AMBIENT AIR QUALITY DATA

SUMMARIES

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M	A	X	I	M	A	24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD:HH	3rd MM/DD:HH	2ND MM/DD:HH		1ST MM/DD	2ND MM/DD	1ST MM/DD	2ND MM/DD				
Amerada Hess - Tioga #1	2003	APR-JUN	2146	21 04/07:09	21 04/08:10	12 04/07:11	11 04/07:05		5 05/20	5 04/07		1.3			12.2		
Amerada Hess - Tioga #3	2003	APR-JUN	2152	60 05/30:01	59 06/16:12	44 05/29:20	43 05/30:02		12 05/30	11 06/17		2.4			16.5		
Bear Paw - MGP #3	2003	APR-JUN	2166	66 04/28:07	46 06/22:12	39 04/28:08	23 06/22:14		6 04/28	5 06/22		1.2			2.4		
Bear Paw - MGP #5	2003	APR-JUN	2166	35 06/02:12	23 04/23:13	13 04/23:14	12 06/02:14		4 04/23	2 06/02		1.2			5.6		
Beulah - North	2003	APR-JUN	2169	36 04/29:09	24 04/29:08	17 05/29:20	14 04/29:11		5 04/01	4 04/29		1.6			15.9		
DGC #12	2003	APR-JUN	2170	27 04/01:09	21 04/03:03	17 04/03:05	14 04/29:11		4 04/03	4 06/28		1.6			16.1		
DGC #14	2003	APR-JUN	2172	49 04/13:10	27 04/13:09	30 04/13:11	12 04/24:08		6 04/13	5 04/24		1.5			24.2		
DGC #16	2003	APR-JUN	2164	33 06/19:21	31 06/18:23	25 05/01:08	21 05/07:14		7 05/07	6 05/01		2.0			22.0		
DGC #17	2003	APR-JUN	2165	39 05/01:07	21 05/04:00	18 05/01:08	11 05/03:23		4 05/01	4 04/24		1.4			13.2		
Dunn Center	2003	APR-JUN	2172	14 04/04:11	13 04/04:08	11 04/04:11	9 04/04:08		5 04/04	3 04/01		1.4			30.1		
Fargo NW	2003	APR-JUN	2170	5 04/26:21	4 04/05:07	3 04/12:08	3 04/24:08		2 04/24	1 05/04		1.0			2.5		
Hannover	2003	APR-JUN	2167	67 04/04:14	39 06/24:06	35 04/04:14	23 06/16:11		6 06/16	6 04/04		1.9			20.4		
Mandan - SPM	2003	APR-JUN	2171	71 04/26:20	62 06/21:17	36 05/11:11	36 05/11:02		25 05/11	20 05/19		3.5			27.1		
Mandan NW - SPM	2003	APR-JUN	2174	91 06/19:21	84 04/18:01	72 04/23:05	45 04/18:02		17 04/18	17 05/07		4.2			35.8		

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : SULFUR DIOXIDE (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		3 - HOUR		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD				
TRNP - NU	2003	APR-JUN	1702	10 ***	8 04/04:15 04/04:14	6 04/04:17	5 04/01:11	2 04/04	2 06/02	1.2			13.0
TRNP - SU (Painted Canyon)	2003	APR-JUN	2171	7 04/20:22	6 04/14:18	5 04/14:20	4 04/09:23	3 04/14	3 04/10	1.2			13.9
White Shield	2003	APR-JUN	2169	22 05/01:09	17 04/05:15	14 05/01:11	11 04/26:08	4 04/06	3 04/26	1.4			14.3

The maximum 1-hour concentration is 91 ppb at Mandan NW - SPM on 06/19:21
The maximum 3-hour concentration is 72 ppb at Mandan NW - SPM on 04/23:05
The maximum 24-hour concentration is 25 ppb at Mandan - SPM on 05/11

* The air quality standards are:

STATE Standards -

- 1) 273 ppb maximum 1-hour average concentration.
- 2) 99 ppb maximum 24-hour average concentration.
- 3) 23 ppb maximum annual arithmetic mean concentration.

FEDERAL Standards -

- 1) 500 ppb maximum 3-hour concentration not to be exceeded more than once per year.
- 2) 140 ppb maximum 24-hour concentration not to be exceeded more than once per year.
- 3) 30 ppb annual arithmetic mean.

*** Less than 80% of the possible samples (data) were collected.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide 5-Minute Averages (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	5 - M I N U T E			M A X I M A			# HOURS >600	% >MDV
				1ST DATE MM/DD:HH	2ND DATE MM/DD:HH	3RD DATE MM/DD:HH					
Amerada Hess - Tioga #1	2003	APR-JUN	2146	68 04/09:11	58 05/20:08	49 04/09:05				0	21.8
Amerada Hess - Tioga #3	2003	APR-JUN	2152	221 06/16:12	164 04/10:09	121 06/17:13				0	26.4
Bear Paw - MGP #3	2003	APR-JUN	2166	203 05/29:12	179 05/29:13	170 06/12:08				0	8.1
Bear Paw - MGP #5	2003	APR-JUN	2166	355 06/02:12	131 04/23:07	129 05/31:12				0	15.3
Beulah - North	2003	APR-JUN	2169	71 04/29:09	53 04/01:07	45 04/01:13				0	24.0
Dunn Center	2003	APR-JUN	2172	23 04/04:07	22 04/04:09	20 04/04:11				0	84.0
Fargo NW	2003	APR-JUN	2170	14 05/02:20	11 04/30:08	10 04/08:00				0	6.9
Hannover	2003	APR-JUN	2167	98 05/01:07	88 04/04:14	76 06/24:07				0	28.8
Mandan - SPM	2003	APR-JUN	2171	160 06/23:08	132 04/26:20	125 04/26:21				0	42.7
Mandan NW - SPM	2003	APR-JUN	2174	406 06/19:09	171 04/22:07	155 05/07:09				0	47.7
TRNP - NU	2003	APR-JUN	1702	11 04/04:15	10 04/01:11	10 04/04:14				0	27.4
TRNP - SU (Painted Canyon)	2003	APR-JUN	2171	21 04/20:22	19 06/13:01	14 05/28:03				0	22.9

The maximum 5-minute concentration is 406 ppb at Mandan NW - SPM on 06/19:09

* No Standard is currently in effect:

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ozone (PPB)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A				8 - HOUR				4TH MM/DD:HH	1HR #>120	8HR #>80
				1ST MM/DD:HH	-	HOUR 2ND MM/DD:HH	1ST MM/DD:HH	-	HOUR 2ND MM/DD:HH	3RD MM/DD:HH	4TH MM/DD:HH			
Beulah - North	2003	APR-JUN	2171	72 04/12:15	-	72 04/12:16	69 04/12:10	-	59 04/12:09	59 04/12:11	59 04/12:08			
Dunn Center	2003	APR-JUN	2174	70 04/12:14	-	68 04/12:13	64 04/12:08	-	58 04/12:09	58 04/12:07	58 04/12:10			
Fargo NW	2003	APR-JUN	2169	75 04/26:14	-	74 04/23:15	70 04/24:10	-	66 04/24:12	66 04/24:11	66 04/24:09			
Hannover	2003	APR-JUN	2171	72 04/12:16	-	70 04/12:15	67 04/12:10	-	60 04/12:09	60 04/12:11	60 04/12:08			
TRNP - NU	2003	APR-JUN	2170	66 04/12:15	-	65 04/12:16	62 04/24:10	-	61 04/24:09	61 04/12:09	61 05/28:09			
TRNP - SU (Painted Canyon)	2003	APR-JUN	2171	64 05/14:13	-	64 05/14:15	63 05/14:09	-	59 05/14:08	59 05/14:10	59 05/14:07			

The maximum 1-hour concentration is 75 ppb at Fargo NW on 04/26:14
The highest 4th highest 8-hour concentration is 66 ppb at Fargo NW on 04/24:09

* The air quality standards for ozone are:
STATE - 120 ppb not to be exceeded more than once per year.

FEDERAL - Fourth highest daily maximum 8-hour averages for a 3-year period not to exceed 80 ppb.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Nitrogen Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A 1 - HOUR		ARITH MEAN	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH		
Beulah - North	2003	APR-JUN	2093	21 05/16:21	21 06/23:22	2.6	70.1
DGC #12	2003	APR-JUN	2162	25 05/27:21	24 04/30:22	2.5	65.3
DGC #17	2003	APR-JUN	2148	21 06/17:20	17 05/01:07	2.5	78.0
Dunn Center	2003	APR-JUN	2163	14 06/03:20	13 06/03:19	1.9	47.8
Fargo NW	2003	APR-JUN	2163	45 05/12:20	42 05/26:20	6.9	89.5
Hannover	2003	APR-JUN	2164	22 04/04:14	20 06/01:10	2.3	60.0
Short Creek, ND	2003	APR-JUN	2166	26 05/28:09	21 05/28:21	2.9	68.7
TRNP - NU	2003	APR-JUN	1805	6 04/04:18	5 04/01:11	1.3	24.1

The maximum 1-hour concentration is 45 ppb at Fargo NW on 05/12:20

* The air quality standards are:
STATE - 53 ppb maximum annual arithmetic mean.

FEDERAL - 53 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ammonia (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A		1 - HOUR	5TH MM/DD:HH	6TH MM/DD:HH	
				1ST MM/DD:HH	2ND MM/DD:HH	3RD MM/DD:HH	4TH MM/DD:HH		
Beulah - North	2003	APR-JUN	1512 ***	97.0 05/11:21	55.0 05/11:23	54.2 04/20:21	47.0 05/11:20	37.0 05/11:22	36.2 05/17:03

* No standard is currently in effect.

*** Less than 80% of the possible samples (data) were collected.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable Continuous PM_{2.5} (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A		24 - HOUR	3RD MM/DD	4TH MM/DD	MEAN	1HR #>150	24HR #>65
				1ST MM/DD:HH	2ND MM/DD:HH						
Beulah - North	2003	APR-JUN	2169	32.9 04/16:08	19.6 04/16:09	14.0 06/20	11.2 04/25	10.8 04/24	10.2 05/01	6.4	
Fargo NW	2003	APR-JUN	1994	33.2 04/24:20	27.0 06/21:13	16.4 06/03	14.4 06/04	14.3 06/21	12.7 05/18	5.3	
Hannover	2003	APR-JUN	2172	23.9 06/20:17	21.2 06/21:11	16.4 06/20	12.4 04/25	11.0 05/01	10.8 04/24	6.7	
TRNP - NU	2003	APR-JUN	2147	22.2 04/04:18	18.4 04/04:14	10.5 06/20	10.2 04/24	9.9 04/25	9.6 04/13	5.8	
TRNP - SU (Painted Canyon)	2003	APR-JUN	1638	30.7 06/30:21	27.5 05/27:00	10.6 06/20	9.7 05/26	9.5 06/01	9.1 04/24	5.7	

The maximum 1-hour concentration is 33.2 µg/m³ at Fargo NW on 04/24:20

The highest 24-hour concentration is 16.4 µg/m³ at Fargo NW on 06/03

* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m³.
- 2) Annual: 3-year average not to exceed 15 µg/m³.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable FRM PM_{2.5} Particulates ($\mu\text{g}/\text{m}^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A			ARITH MEAN	#> 65	AM>15	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Beulah - North	2003	APR-JUN	15	3.8	14.7 06/20	12.9 06/02	9.4 05/27	7.8			100.0
Bismarck Residential	2003	APR-JUN	30	3.1	14.8 06/20	13.8 04/12	11.1 04/18	7.0			100.0
Fargo NW	2003	APR-JUN	29	0.4	16.3 04/24	16.1 05/18	13.9 06/02	7.5			93.1
TRNP - NU	2003	APR-JUN	15	3.5	11.2 06/20	10.3 06/02	8.8 05/15	6.5			100.0
TRNP - SU (Painted Canyon)	2003	APR-JUN	15	2.5	10.6 04/21	10.3 06/20	7.8 04/15	5.8			100.0

The maximum 24-hour concentration is 16.3 $\mu\text{g}/\text{m}^3$ at Fargo NW on 04/24

* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 $\mu\text{g}/\text{m}^3$.
- 2) Annual: 3-year average not to exceed 15 $\mu\text{g}/\text{m}^3$.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable PM₁₀ Particulates ($\mu\text{g}/\text{m}^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A			ARITH MEAN	#>150	AM>50	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Bismarck Residential	2003	APR-JUN	15	7.0	60.0 06/20	30.0 04/15	21.0 05/27	17.5			100.0
Dragswolf	2003	APR-JUN	15	4.3	17.6 06/20	12.6 05/27	11.4 05/15	8.3			100.0
Fargo NW	2003	APR-JUN	30	2.0	49.0 04/24	41.0 04/30	36.0 06/20	19.2			96.7
TRNP - NU	2003	APR-JUN	15	5.0	26.0 06/20	16.0 04/15	15.0 06/02	11.1			100.0
White Shield	2003	APR-JUN	15	4.0	17.7 06/20	13.6 06/02	11.6 05/27	8.7			100.0

The maximum 24-hour concentration is 60.0 $\mu\text{g}/\text{m}^3$ at Bismarck Residential on 06/20

* The STATE and FEDERAL air quality standards are:

- 1) 150 $\mu\text{g}/\text{m}^3$ maximum averaged over a 24-hour period with no more than one expected exceedance per year.
- 2) 50 $\mu\text{g}/\text{m}^3$ expected annual arithmetic mean.

SECTION THREE

EXCEEDANCE LISTINGS

By Site Date Hour

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and PM_{2.5} and PM₁₀ ($\mu\text{g}/\text{m}^3$)

The * Identifies the Exceedances

NONE

By Date Hour Site

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and PM_{2.5} and PM₁₀ ($\mu\text{g}/\text{m}^3$)

The * Identifies the Exceedances

NONE